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cont

modifying the composition of atomic planes in the material around an interface between two layers of the multi-layer material.

**Please add the following new claims:**

11. (New) Process according to claim 1, wherein said irradiation is capable of modifying the composition around said interface between two layers without measurably increasing the surface roughness of the multi-layer material.

12. (New) Process according to claim 1, wherein said irradiation is capable of modifying chemical composition of only one of the layers.

13. (New) Process according to claim 1, wherein chemical composition of at least one of the layers remains unchanged after the irradiation.

14. (New) A process for performing irradiation on a multi-layer material having a buried layer disposed between at least one top layer and at least one bottom layer, said process comprising:

selecting one or more regions of the multi-layer material having a width in the order of 1 micrometer or less; and

irradiating the selected regions of the multi-layer material with (1) a beam of light ions having an energy of the order of or less than a hundred keV and (2) irradiation dose controlled so as to be a few  $10^{16}$  ions/cm<sup>2</sup> or less such that the irradiation modifies the buried layer of the multi-layer material.

15. (New) Process according to claim 14, wherein the irradiation is capable of modifying the buried layer of the multi-layer material without significantly interacting with atoms of the at least one top layer of the multi-layer material.

16. (New) Process according to claim 14, wherein the at least one top layer comprises five atomic planes or less.

17. (New) Process according to claim 14, wherein the irradiation modifies a magnetic property of the buried layer.

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18. (New) Process according to claim 14, wherein the irradiation is capable of modifying the buried layer of the multi-layer material without significantly effecting an optical reflectivity of the at least one top layer of the multi-layer material.

19. (New) Process according to claim 14, wherein said irradiation is capable of modifying the magnetic property of the buried layer without measurably increasing the surface roughness of the multi-layer material.